REMARKS

In the Office Action, Claims 8, 11, and 13-19 are pending and stand rejected. In response, Claims 8, 11, 13-14, and 16-19 are amended, Claim 15 is cancelled and no claims are added. Claims 1-7, 9, 10, and 12 were cancelled previously and Claims 17-19 were added previously. Applicants respectfully request reconsideration of pending claims in view of the above amendments and the following remarks.

I. Claim Rejections Under 35 U.S.C. §103

Claims 8, 11, and 13-16 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,950,545 to Nomoto et al. ("Nomoto") in view of U.S. Patent 5,461,417 to White et al. ("White"). Applicant respectfully traverses this rejection.

Regarding Claim 8, Claim 8 recites:

> 1. An impurity measuring device comprising:
> a table on which a metal sample having a fracture surface is mounted with said fracture surface facing up;
> a reflection dome disposed over said table and having a downward concave reflection surface of a substantially semicircular section with an opening in the vicinity of a vertex thereof;
> a plurality of light sources which are mounted along an inner edge of said concave reflection surface of said reflection dome so as to emit light toward said reflection dome;
> an imaging means, disposed over said opening of said reflection dome, for sensing an image of the fracture surface irradiated with the light;
> a continuous tone color image processing means for processing the sensed image into a continuous tone color image; and
> binarizing means for binarizing the continuous tone color image through comparison between a result of the continuous tone color image processing and a threshold value. (Emphasis added.)

While Applicant's argument here is directed to the cited combination of references, it is necessary to first consider their individual teachings, in order to ascertain what combination (if any) could be made from them.

Nomoto is generally directed to a method for inspecting a crack in a metal surface by using liquid penetrant inspection and magnetic particle testing (see Abstract). In contrast, Claim 8 provides a method for inspecting a metal surface for included non-metallic impurities by using illumination, image sensing, image processing, and binarization.

Further, in contrast with Claim 8, Nomoto requires that the sample surface is relatively flat, e.g. a cut surface or a cast surface. Claim 8 describes a fracture surface, in which a liquid penetrant as described by Nomoto could pool or soak into minute irregularities, rendering inspection of the fracture surface for non-metallic inclusions impossible. Since Nomoto is unable to use a sample having a fracture surface, Nomoto cannot be said to disclose a metal sample having a fracture surface which is irradiated by light to obtain an image which is processed and binarized to detect impurities such as non-metallic inclusions, as in Claim 8.

As correctly recognized by the Examiner, Nomoto is silent on using a reflection dome disposed over a table to diffuse light toward a specimen. As a result, the Examiner cites White. We disagree with the Examiner's assertions and characterizations regarding White.

White is generally directed to a lighting apparatus for electronic or manual inspection of objects having specular surfaces, including surfaces of convex configurations and/or containing numerous convex and concave texture elements, along an observational axis, in which variations in surface brightness are minimized by a diffuse light source disposed outside a dome which is directed to the object (see Abstract and col. 2, line 64 to col. 3, line 2). In contrast with Claim 8, White does not disclose a reflection dome having a downward concave reflection surface of a substantially semicircular section, having an opening in the vicinity of a vertex thereof, having a plurality of light sources which are mounted **along an inner edge of said concave reflection surface of said reflection dome so as to emit light toward said reflection dome**, and an image sensing means, disposed over said opening of said reflection dome, for sensing an image of a metal sample fracture surface irradiated with the light. Since White suggests neither the use of a metal sample having a fracture surface which is illuminated by light reflected from the inner side of a reflection dome, nor the combination of image sensing means, a continuous tone color image processing means, and binarizing means for binarizing the continuous tone color image through comparison between a result of the continuous tone color image processing and a

threshold value, White cannot be said to disclose the non-metallic inclusion measuring device of Claim 8.

Hence, no combination of Nomoto in view of White could disclose or suggest a plurality of light sources which are mounted **along an inner edge of said concave reflection surface of said reflection dome so as to emit light toward said reflection dome**, and an image sensing means, disposed over said opening of said reflection dome, for sensing an image of a metal sample fracture surface irradiated with the light, as in Claim 8.

For each of the above reasons, therefore, Claim 8 and all claims which depend on Claim 8 are patentable over the cited art. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the §103(a) rejection of Claims 8, 11 and 13-16.

DEPENDENT CLAIMS

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicant's silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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CERTIFICATE OF TRANSMISSION
I hereby certify that this correspondence is being submitted electronically via EFS Web on the date shown below to the United States Patent and Trademark Office.

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Alexandra Y. Caluen September 22, 2008